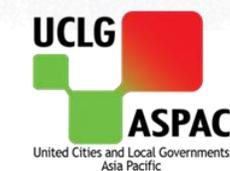
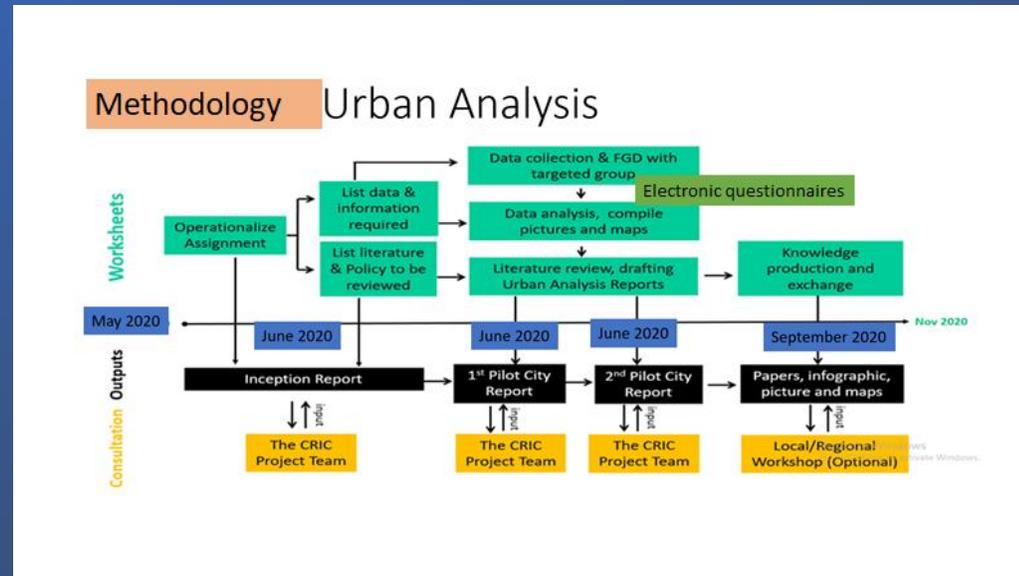


Urban Analysis Reports



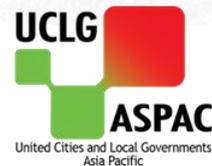
Introduction of the expert, team and methodology

The expert and team:
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Irfan Gunawan



What Makes Bandar Lampung Different?

- **Capital city of province**
Bandar Lampung becomes economic center of Lampung Province and one of mainstays to become the center of southern Sumatra's growth.
- **Vulnerable to disasters**
As a coastal city and its position, Bandar Lampung is considered vulnerable to flooding, drought, tsunami, landslides, earthquake, and volcanic eruption.
- **Became a pilot city for ACCCRN program (2010)**
The program has resulted in several document that is essential for city development i.e. Vulnerability and Adaptation Assessment to Climate Change In Bandar Lampung City and Resilience Strategy to Climate Change in Bandar Lampung



Summary report of the main findings and challenges of the city

Main Findings

Bandar Lampung City is at high risk from natural catastrophe and natural hazards such as droughts, landslides, high tides (tsunamis), earthquakes, fires and floods. Most communities have lack knowledge about disaster handling, climate change, and its impacts.

Besides challenges in managing energy, transportation, and telecommunication, the government of Bandar Lampung also has big concerns on the waste produced by the entire city. The city needs to develop ISWRM - Integrated Sustainable Solid Waste and Resources Management.

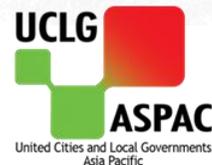
Bandar Lampung faces many challenges and problems regarding climate change adaptation and mitigation such as physical infrastructures that are still vulnerable to climate change or disaster, fossil fuels use that is still widely spread and contribute a lot of greenhouse gases, and so on.

Facilities for transportation and accessibility in Bandar Lampung are still limited. Mass transportation modes barely become the main city transportation chosen by communities. Bandar Lampung also hasn't become pedestrian friendly.

Effort to disseminate information regarding disaster and climate change is absolutely needed, especially for groups that are vulnerable to climate risk (women, elderly, children, coastal community, etc.).

Challenges of the City

- ✓ Coordination between each agency in government bodies.
- ✓ Problems in urban spatial planning, where limited urban spaces hardly can keep up with population growth
- ✓ The plurality of community makes the local government have to plan a right strategy to educate the community.
- ✓ There must be an improvement in state civil apparatus's competence and capacity in order to understand city technical problems.
- ✓ Limited funds
- ✓ Political will
- ✓ Carrying capacity of the environment or the city that keeps on decreasing.
- ✓ Collaboration between sectors in the city
- ✓ Institutional issues
- ✓ Commitment and consistency in implementing policies and development direction



General Remarks and recommendations for the local action plan

1. Bandar Lampung city needs to develop more integrated an early warning system and add more the Warning Receiver System (WSR) in the entire city in order to well overcome the risks of catastrophe such as earthquake, tsunami, fires and floods.

2. Enhance public education and campaign as most communities in Bandar Lampung City have lack knowledge about disaster handling, climate change, and its impacts.

3. Effort to disseminate information regarding disaster and climate change is absolutely needed, especially for groups that are vulnerable to climate risk.

4. Facilities for transportation and accessibility in Bandar Lampung City need to be improved as they are still limited.

5. In order to integrate the policies, climate change management in Bandar Lampung City should involve stakeholders from both internal and external into a better partnership collaboration. Each stakeholder should develop their roles and contributions to adapt and strengthen society for climate change.

6. The government need to address the problem of lack of policies and regulations aimed at protecting women and children

7. To achieve the climate resilient and inclusive city goal, the city government surely needs supporting local regulation and a great amount of money that if it's only with the local government budget would not be enough. Therefore, the city government can search for many international funding resources to encourage sustainable development implementation in Bandar Lampung, such as Green Climate Fund (GCF), Global Environment Fund (GEF), and other funding resources.

8. Substitute fossil fuel usage with environmentally friendly fuel. There are many opportunities to develop mass transportation in Bandar Lampung, such as natural gas use for mass transportation.

9. Lampung Province itself has a huge potential on geothermal resources, so as the capital city of province Bandar Lampung can encourage the development of this renewable energy.

10. Make a tool and indicator to measure city resilience achievement.

11. Organize, manage, and pay more attention to coastal communities and other communities that are vulnerable and marginalized.

12. Enhance a collaboration between sectors in the city, the role of private institutions and non-government organizations (NGOs), and community empowerment to create a sustainable city.

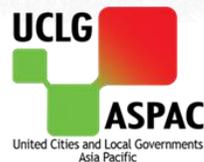
13. The capacity of government officials to prepare for the impacts of climate change needs to be improved, such as calculating greenhouse gas emissions, preparing for the risk of natural disasters (floods, earthquakes, fires, etc.) through hands-on training.



CLIMATE MITIGATION AND ADAPTATION

1. Water distillation (2010-now).
2. Green village or Kampung Hijau (2010-now)
3. Teaching material education of climate change in elementary school and junior high school (2012-2015)
4. Making biopore infiltration holes (2012-2014)
5. Green environment planning as a concept of environmental-friendly and sustainable city
6. BPBD also carried out a study about disaster risk reduction management associated with BNPB
7. There is a panic button with number 126 that is synergized with Serve and Protect Integration System (SPIS) application and the 110 hotline are spread throughout the villages in Bandar Lampung.

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DISASTER PREPAREDNESS, PREVENTION, AND RESILIENCE - RIVER BANK SETTLEMENTS

Public Facilities

- Panic buttons for emergency or danger synergized with Serve and Protection Integration System application and 110 hotline
- 350 Signposts of evacuation route (target : 1,500 installation)

Programs/Measures

- Development of 4,545 m long city drainage
- River normalization with 2,345 m long
- Develop water supply network by a connection target of 300,000 people
- Program to handling urban slum area (Kotaku, NSUP-2)

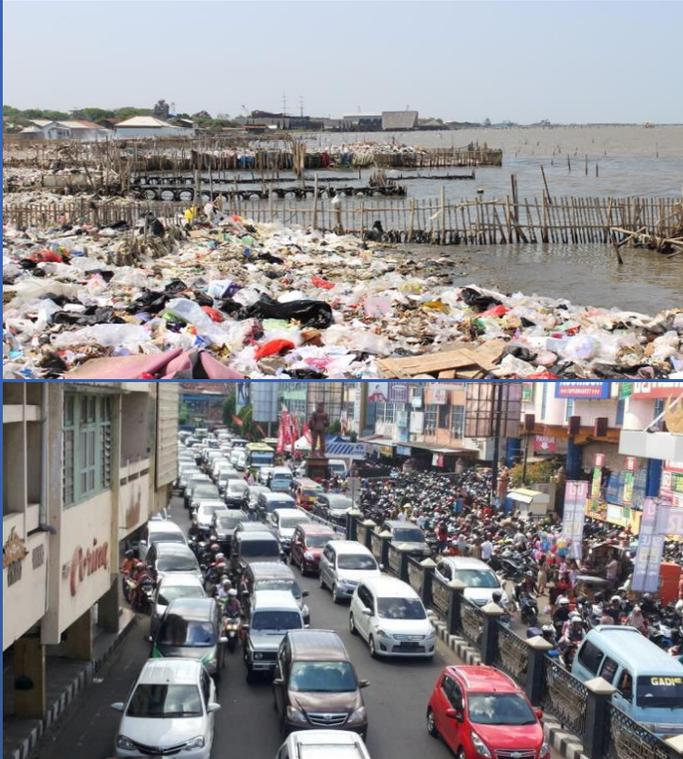
Resilience

- No early warning system
- Lack of community awareness and anticipation
- Lack in infrastructure
- Women, elderly, children, and coastal community are vulnerable

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AIR POLLUTION OR OTHER MAIN POLLUTIONS (EG. RIVER POLLUTION)



1. Air Pollution

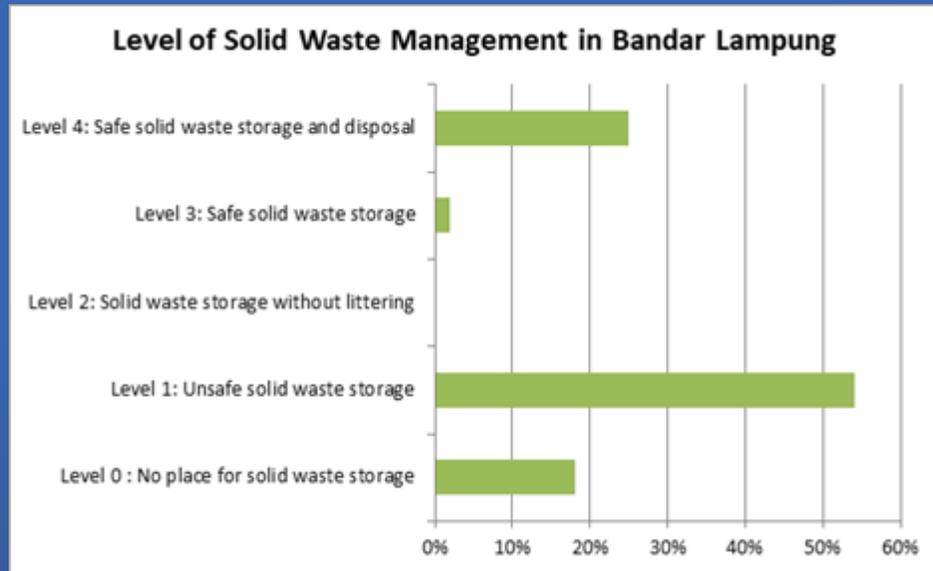
- Motor vehicle fumes are the biggest contributor to air pollution in Bandar Lampung City
- In the city of Bandar Lampung, the growth rate of transportation facilities is quite high, reaching 10% per year, while two-wheeled vehicles reach 20%.

2. Water Pollution

- The rapid growth of business / industry, hospitals and tourism in the city of Bandar Lampung has a significant impact on the results of liquid waste disposal.
- Garbage disposal on riverbanks.

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WASTE MANAGEMENT



- Open Dumping System in Bakung Landfill
- There are three machines that process organic waste into fertilizer with a total production of 200 kg per week
- The Government of Bandar Lampung issued a regulation regarding waste that can be stored by the mining company based on Mayor of Bandar Lampung Number: 744 / III.20 / HK / 2014
- Master Plan Integrated Waste Management (2010-now)

To accommodate municipal solid waste, it requires around 30 ha area whilst Bakung landfill only fulfills 14.1 ha. Based on SNV (2018), IPLT Bakung is also over capacity.

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INFORMAL SETTLEMENT



Informal Settlement in Pesawahan,
South Telukbetung Sub-District
Source: Tribunnews

Existing Condition

- Informal settlements are spread on coastal areas, riverbanks, enterprise - owned land
- Local Development Planning Board (*Bappeda*) : 18 urban villages are categorized as slum areas
- *Kotaku* (City Without Slums) Program to handle slum environment
- Determine a one data, one map, and one planning document for all in dealing with slums

Challenge

- Clashes between residents with city government or enterprise when controlling or eviction take places

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PARTICIPATION OF CIVIL SOCIETY AND GOVERNANCE

SNV and Damar supports local governments of Bandar Lampung City to achieve sustainable and inclusive city-wide sanitation service in their area. Together, they work on change the way human waste is managed by addressing different needs among the population, different parts of the sanitation service chain, and different geographical areas with appropriate service delivery models, empowering the women and children.

Mitra Bentala supports the city on reducing damage and damage to marine, coastal and small island ecosystems (mangroves, seagrasses, coral reefs) as well as encouraging integrated and sustainable management of coastal and marine natural resources and Lampung small islands.

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CHALLENGES

1. Land Use

- ❑ Agricultural lands in the outskirts of the city are changed into residential area due to urbanization and the increase of population

2. Spatial Planning

- ❑ The absence of integrated sustainable planning in terms of climate adaptation, mitigation, water sanitation, city development, and integrated public transportation, make it difficult to draw up investment to city's development

3. Housing Provision

- ❑ The rapid flow of urbanization that occurs in the city of Bandar Lampung is not matched by the readiness of the availability of land and infrastructure, especially in the field of water supply and sanitation, resulting in the increase of slum neighborhood.

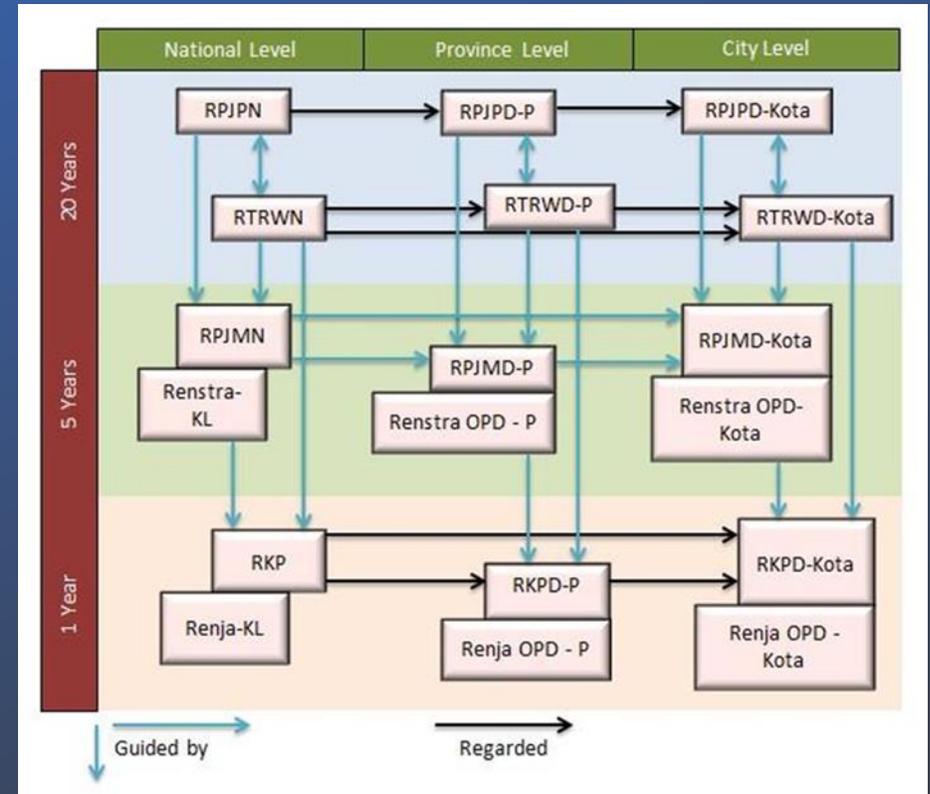
4. Green Spaces

- ❑ Water catchment areas are decreasing

Articulation with the national policies

In planning regional development, decision-making is carried out cohesively in order to enhance community's welfare in Bandar Lampung. Development planning documents, both in national and regional level, consist of several documents that are interconnected and mostly considered based on development period.

In general, city government policies in managing the region is included in RTRW/Regional Spatial Planning of Bandar Lampung. The drafting of RTRW refers to Law of The Republic Indonesia Number 26 Year 2007 on Spatial Management. Based on study done by ACCCRN, regions that are vulnerable to climate change are categorized into disaster-prone regions, landslide-prone regions, tsunami-prone regions, and flood-prone regions. As a continuation of the study done by ACCCRN, the city resilience strategies to deal with climate change were arranged.



BEST PRACTICES AND CHALLENGES

1. *Program NSUP Kotaku* (City-Without-Slums Program) to accelerate slums handling and support “100-0-100 Movement”
2. NUSP-2 Program (Neighborhood Upgrading Shelter and Project Phase 2 Program): overall, slums area has been reduced around 5%.
3. Task force unit of *Bersih Kali* (River Cleaning) that consist of BPBD, Public Works Agency, and Environmental Services Agency
4. Bandar Lampung City government put climate change education into the elementary school curriculum

1. Bandar Lampung City is still constrained by electric energy which is often blackout,
2. The absence of renewable energy sources,
3. The poor management of mass transportation.
4. Community awareness that is relatively low and lack of socialization to community.
5. Physical infrastructures that are still vulnerable to climate change or disaster
6. Fossil fuels use that is still widely spread and contribute a lot of greenhouse gases
7. the waste produced by the entire city

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GHG MAPPING

- Bandar Lampung does not have a greenhouse gas emission map. However, drafting disaster prone areas of Bandar Lampung has been included in Bappeda Renstra 2016-2021.
- In 2019, Bakung landfill produced 567.397 m³ of methane (Iryani *et al.* 2019).

No	Parameter	Unit	Location 1	Location 2	Location 3	Pollution status
1	SO ₂	µg/Nm ³	59,87	56,37	58,72	Good
2	O ₃	µg/Nm ³	21,79	70,36	45,20	Very Good
3	NO ₂	µg/Nm ³	12,20	13,10	15,00	Very Good
4	PM ₁₀	µg/Nm ³	21,48	28,45	7,23	Very Good

Based on the pollution category, the three locations still have a good SO₂ pollution category, which is in the range 50-100. Meanwhile, for O₃, NO₂, and PM₁₀ based on the pollution category it also still has a very good category.

ISPU Value Calculation Results Data for three locations in Bandar Lampung City 2015

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Conclusion

Bandar Lampung faces many challenges and problems regarding climate change adaptation and mitigation such as physical infrastructures that are still vulnerable to climate change or disaster, fossil fuels use that is still widely spread and contribute a lot of greenhouse gases, and so on.

Bandar Lampung City is at high risk from natural catastrophe and natural hazards such as droughts, landslides, high tides (tsunamis), earthquakes, fires and floods. Most communities have lack knowledge about disaster handling, climate change, and its impacts.



Questions and Answers

